lenovo

Lenovo IdeaPad Flex 10

Hardware Maintenance Manual

Note:

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 63.

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Contents

About this manual iv

Safety information 1
General safety 2
Electrical safety 3
Safety inspection guide 5
Handling devices that are sensitive to electrostatic discharge 6
Grounding requirements 6
Safety notices: multilingual translations 7
Laser compliance statement 14

Important service information 16
Strategy for replacing FRUs 16
- Strategy for replacing a hard disk drive 17
- Important notice for replacing a system board 17

Important information about replacing RoHS compliant FRUs 18

General checkout 19
What to do first 20
Power system checkout 21
- Checking the AC adapter 21
- Checking operational charging 21

Related service information 23
Restoring the factory contents by using Recovery system 23
- Restore of factory default 23

Passwords 24
- Power-on password 24
- Hard-disk password 24
- Supervisor password 24

Power management 25
- Screen blank state 25
- Putting the computer to sleep or shutting it down 25
- Putting your computer to sleep 25
- Shutting down the computer 26

Lenovo IdeaPad Flex 10 27
Specifications 27
Status indicators 29
Fn key combinations 30
FRU replacement notices 31
- Screw notices 31

Removing and replacing an FRU 32
- 1010 Base cover 33
- 1020 Battery pack 35
- 1030 Keyboard 36
- 1040 Hard disk drive 38
- 1050 PCI Express Mini Card for wireless LAN 39
- 1060 Heat sink 41
- 1070 Power button & USB board 42
- 1080 System board 43
- 1090 Microphone 45
- 1100 LCD unit 46

Locations 49
- Front view and right-side view 49
- Bottom and Left-side view 50

Parts list 51
- Overall 52
- Keyboard 54
- Miscellaneous parts 58
- Screws 58
- AC adapters 59
- Power cords 60

Notices 63
Trademarks 64

About this manual

This manual contains service and reference information for the following Lenovo product:

Lenovo IdeaPad Flex 10

Use this manual to troubleshoot problems.

The manual is divided into the following sections:

- The common sections provide general information, guidelines, and safety information required for servicing computers.
- The product-specific section includes service, reference, and product-specific parts information.

Important:

This manual is intended only for trained servicers who are familiar with Lenovo products. Use this manual to troubleshoot problems effectively.

Before servicing a Lenovo product, make sure to read all the information under “Safety information” on page 1 and “Important service information” on page 16.

Safety information

This chapter presents the following safety information that you need to get familiar with before you service a Lenovo IdeaPad Flex 10 computer:

- “General safety” on page 2
- “Electrical safety” on page 3
- “Safety inspection guide” on page 5
- “Handling devices that are sensitive to electrostatic discharge” on page 6
- “Grounding requirements” on page 6
- “Safety notices: multilingual translations” on page 7
- “Laser compliance statement” on page 14

General safety

Follow these rules below to ensure general safety:

- Observe a good housekeeping in the area where the machines are put during and after the maintenance.
- When lifting any heavy object:
  1. Make sure that you can stand safely without slipping.
  2. Distribute the weight of the object equally between your feet.
  3. Use a slow lifting force. Never move suddenly or twist when you attempt to lift it.
  4. Lift it by standing or pushing up with your leg muscles; this action could avoid the strain from the muscles in your back. Do not attempt to lift any object that weighs more than 16 kg (35 lb) or that you think is too heavy for you.
- Do not perform any action that causes hazards to the customer, or that makes the machine unsafe.
- Before you start the machine, make sure that other service representatives and the customer are not in a hazardous position.
- Please remove covers and other parts in a safe place, away from all personnel, while you are servicing the machine.
- Keep your toolcase away from walk areas so that other people will not trip over it.
- Do not wear loose clothing that can be trapped in the moving parts of the machine. Make sure that your sleeves are fastened or rolled up above your elbows. If your hair is long, fasten it.
- Insert the ends of your necktie or scarf inside clothing or fasten it with the nonconductive clip, about 8 centimeters (3 inches) from the end.
- Do not wear jewelry, chains, metal-frame eyeglasses, or metal fasteners for your clothing.

  Attention: Metal objects are good electrical conductors.
- Wear safety glasses when you are hammering, drilling, soldering, cutting wire, attaching springs, using solvents, or working in any other conditions that may be hazardous to your eyes.
- After service, reinstall all safety shields, guards, labels, and ground wires. Replace any safety device that is worn or defective.
- Reinstall all covers correctly before returning the machine to the customer.
- Fan louvers on the machine help to prevent the overheating of internal components. Do not obstruct fan louvers or cover them with labels or stickers.

Electrical safety

Observe the following rules when working on electrical equipments.

Important:

Use only approved tools and test equipments. Some hand tools have handles covered with a soft material that does not insulate you when working with live electrical currents.

Many customers have rubber floor mats near their machines that contain small conductive fibers to decrease electrostatic discharges. Do not use such kind of mat to protect yourself from electrical shock.

- Find the room emergency power-off (EPO) switch, disconnecting switch or electrical outlet. If an electrical accident occurs, you can then operate the switch or unplug the power cord quickly.
- Do not work alone under hazardous conditions or near the equipment that has hazardous voltages.
- Disconnect all power before:
  - Performing a mechanical inspection
  - Working near power supplies
  - Removing or installing main units
- Before you start to work on the machine, unplug the power cord. If you cannot unplug it, ask the customer to power-off the wall box that supplies power to the machine, and to lock the wall box in the off position.
- If you need to work on a machine that has exposed electrical circuits, observe the following precautions:
  - Ensure that another person, familiar with the power-off controls, is near you.

    Attention: Another person must be there to switch off the power, if necessary.
  - Use only one hand when working with powered-on electrical equipment; keep the other hand in your pocket or behind your back.

    Attention: An electrical shock can occur only when there is a complete circuit. By observing the above rule, you may prevent a current from passing through your body.
  - When using testers, set the controls correctly and use the approved probe leads and accessories for that tester.
  - Stand on suitable rubber mats (obtained locally, if necessary) to insulate you from grounds such as metal floor strips and machine frames.

Observe the special safety precautions when you work with very high voltages; instructions for these precautions are in the safety sections of maintenance information. Be extremely careful when you measure the high voltages.

- Regularly inspect and maintain your electrical hand tools for safe operational condition.
- Do not use worn or broken tools and testers.
- Never assume that power has been disconnected from a circuit. First, check it to make sure that it has been powered off.

- Always look carefully for possible hazards in your work area. Examples of these hazards are moist floors, nongrounded power extension cables, power surges, and missing safety grounds.
- Do not touch live electrical circuits with the reflective surface of a plastic dental mirror. The surface is conductive; such touching can cause personal injury and machine damage.
- Do not service the following parts with the power on when they are removed from their normal operating places in a machine:
  - Power supply units
  - Pumps
  - Blowers and fans
  - Motor generators

  and similar units. (This practice ensures correct grounding of the units.)
- If an electrical accident occurs:
  - Caution: do not become a victim yourself.
  - Switch off the power.
  - Send the victim to get medical aid.

Safety inspection guide

The purpose of this inspection guide is to assist you in identifying potential unsafe conditions. As each machine was designed and built, required safety items were installed to protect users and service personnel from injury. This guide addresses only those items. You should use good judgment to identify potential safety hazards according to the attachment of non-Lenovo features or options not covered by this inspection guide.

If any unsafe conditions are present, you must determine how serious the apparent hazard could be and whether you can continue without first correcting the problem.

Consider these conditions and the safety hazards they present:

- Electrical hazards, especially primary power (primary voltage on the frame can cause serious or fatal electrical shock)
- Explosive hazards, such as a damaged CRT face or a bulging capacitor
- Mechanical hazards, such as loose or missing hardware

To determine whether there are any potential unsafe conditions, use the following checklist at the beginning of every service task. Begin the checks with the power off, and the power cord disconnected.

Checklist:

1. Check exterior covers for damage (loose, broken, or sharp edges).
2. Turn off the computer. Disconnect the power cord.
3. Check the power cord for:
   a. A third-wire ground connector in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and the frame ground.
   b. The power cord should be the type specified in the parts list.
   c. Insulation must not be frayed or worn.
4. Check for cracked or bulging batteries.
5. Remove the cover.
6. Check for any obvious non-Lenovo alterations. Use good judgment as to the safety of any non-Lenovo alterations.
7. Check inside the unit for any obvious unsafe conditions, such as metal filings, contamination, water or other liquids, or signs of fire or smoke damage.
8. Check for worn, frayed, or pinched cables.
9. Check that the power-supply cover fasteners (screws or rivets) have not been removed or tampered with.

Handling devices that are sensitive to electrostatic discharge

Any computer part containing transistors or integrated circuits (ICs) should be considered sensitive to electrostatic discharge (ESD). ESD damage can occur when there is a difference in charge between objects. Protect against ESD damage by equalizing the charge so that the machine, the part, the work mat, and the person handling the part are all at the same charge.

Notes:

1. Use product-specific ESD procedures when they exceed the requirements noted here.
2. Make sure that the ESD protective devices you use have been certified (ISO 9000) as fully effective.

When handling ESD-sensitive parts:

- Keep the parts in protective packages until they are inserted into the product.
- Avoid contact with other people.
- Wear a grounded wrist strap against your skin to eliminate static on your body.
- Prevent the part from touching your clothing. Most clothing is insulative and retains a charge even when you are wearing a wrist strap.
- Use the black side of a grounded work mat to provide a static-free work surface. The mat is especially useful when handling ESD-sensitive devices.
- Select a grounding system, such as those listed below, to provide protection that meets the specific service requirement.

Note:

The use of a grounding system to guard against ESD damage is desirable but not necessary.

  - Attach the ESD ground clip to any frame ground, ground braid, or green-wire ground.
  - When working on a double-insulated or battery-operated system, use an ESD common ground or reference point. You can use coax or connector-outside shells on these systems.
  - Use the round ground prong of the ac plug on ac-operated computers.

Grounding requirements

Electrical grounding of the computer is required for operator safety and correct system function. Proper grounding of the electrical outlet can be verified by a certified electrician.

Safety notices: multilingual translations

The safety notices in this section are provided in English, French, German, Hebrew, Italian, Japanese, and Spanish.

Safety notice 1

Before the computer is powered on after FRU replacement, make sure all screws, springs, and other small parts are in place and are not left loose inside the computer. Verify this by shaking the computer and listening for rattling sounds. Metallic parts or metal flakes can cause electrical shorts.

Avant de remettre l'ordinateur sous tension après remplacement d'une unité en clientèle, vérifiez que tous les ressorts, vis et autres pièces sont bien en place et bien fixées. Pour ce faire, secouez l'unité et assurez-vous qu'aucun bruit suspect ne se produit. Des pièces métalliques ou des copeaux de métal pourraient causer un court-circuit.

Bevor nach einem FRU-Austausch der Computer wieder angeschlossen wird, muß sichergestellt werden, daß keine Schrauben, Federn oder andere Kleinteile fehlen oder im Gehäuse vergessen wurden. Der Computer muß geschüttelt und auf Klappergeräusche geprüft werden. Metallteile oder-splitter können Kurzschlüsse erzeugen.

לפני הפעלת המחשב לאחר החלפת FRU יש לוודא
שכל הברגים, הקפיצים, וחלקים קטנים אחרים נמצאים
במקומם ואינם חופשיים לזוז בתוך המחשב. כדי לוודא
זאת, יש לטלטל את המחשב ולהקשיב לגילוי קולות שקשוק.
חלקי או שבבי מתכת עלולים לגרום לקצרים חשמליים.

Prima di accendere l'elaboratore dopo che é stata effettuata la sostituzione di una FRU, accertarsi che tutte le viti, le molle e tutte le altri parti di piccole dimensioni siano nella corretta posizione e non siano sparse all'interno dell'elaboratore. Verificare ciò scuotendo l'elaboratore e prestando attenzione ad eventuali rumori; eventuali parti o pezzetti metallici possono provocare cortocircuiti pericolosi.

FRU の交換後、コンピュータの電源を入れる前に、ねじ、バネ、その他の小さな部品がすべて正しい位置にあり、またコンピュータの内部で緩んでいないことを確認してください。
これを確認するには、コンピュータを振って、カチャカチャと音がしないか確かめます。金属部品や金属破片はショートの原因になることがあります。

Antes de encender el sistema despues de sustituir una FRU, compruebe que todos los tornillos, muelles y demás piezas pequeñas se encuentran en su sitio y no se encuentran sueltas dentro del sistema. Compruébelo agitando el sistema y escuchando los posibles ruidos que provocarían. Las piezas metálicas pueden causar cortocircuitos eléctricos.

Safety notice 2

⚠ DANGER

Some standby batteries contain a small amount of nickel and cadmium. Do not disassemble a standby battery, recharge it, throw it into fire or water, or short-circuit it. Dispose of the battery as required by local ordinances or regulations. Use only the battery in the appropriate parts listing. Use of an incorrect battery can result in ignition or explosion of the battery.

Certaines batteries de secours contiennent du nickel et du cadmium. Ne les démontez pas, ne les rechargez pas, ne les exposez ni au feu ni à l'eau. Ne les mettez pas en court-circuit. Pour les mettre au rebut, conformez-vous à la réglementation en vigueur. Lorsque vous remplacez la pile de sauvegarde ou celle de l'horloge temps réel, veillez à n'utiliser que les modèles cités dans la liste de pièces détachées adéquate. Une batterie ou une pile inappropriée risque de prendre feu ou d'exploser.

Die Bereitschaftsbatterie, die sich unter dem Diskettenlaufwerk befindet, kann geringe Mengen Nickel und Cadmium enthalten. Sie darf nicht zerlegt, wiederaufgeladen, kurzgeschlossen, oder Feuer oder Wasser ausgesetzt werden. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Beim Ersetzen der Bereitschafts-oder Systembatterie nur Batterien des Typs verwenden, der in der Ersatzteilliste aufgeführt ist. Der Einsatz falscher Batterien kann zu Entzündung oder Explosion führen.

סוללות המתנה מסוימות מכילות כמות קטנה
של ניקל וקדמיום. אין לפרק סוללת המתנה,
לטעון אותה מחדש, להשליך אותה לאש או
למים או לקצר אותה. יש לסלק את הסוללה
כנדרש על ידי התקנות והחוקים המקומיים. יש
להשתמש רק בסוללה המופיעה ברשימת החלקים
המתאימה. שימוש בסוללה לא מתאימה עלול
לגרום להצתה או התפוצצות של הסוללה.

Alcune batterie di riserva contengono una piccola quantità di nichel e cadmio. Non smontarle, ricaricarle, gettarle nel fuoco o nell'acqua né cortocircuitarle. Smaltirle secondo la normativa in vigore (DPR 915/82, successive disposizioni e disposizioni locali). Quando si sostituisce la batteria dell'RTC (real time clock) o la batteria di supporto, utilizzare soltanto i tipi inseriti nell'appropriato Catalogo parti. L'impiego di una batteria non adatta potrebbe determinare l'incendio o l'esplosione della batteria stessa.

予備バッテリーの中には少量のニッケルとカドミウムが含まれているものがあります。したがって、予備バッテリーの分解、再充電、火または水の中への投棄、またはショートさせることは決して行わないでください。バッテリーを廃棄する場合は地方自治体の条例に従ってください。適切なパーツ・リストにあるバッテリーだけを使用してください。誤ったバッテリーを使用すると、バッテリーが発火したり、爆発したりすることがあります。

Algunas baterías de reserva contienen una pequeña cantidad de níquel y cadmio. No las desmonte, ni recargue, ni las eche al fuego o al agua ni las cortocircuite. Deséchelas tal como dispone la normativa local. Utilice sólo baterías que se encuentren en la lista de piezas. La utilización de una batería no apropiada puede provocar la ignición o explosión de la misma.

Safety notice 3

⚠ DANGER

The battery pack contains small amounts of nickel. Do not disassemble it, throw it into fire or water, or short-circuit it. Dispose of the battery pack as required by local ordinances or regulations. Use only the battery in the appropriate parts listing when replacing the battery pack. Use of an incorrect battery can result in ignition or explosion of the battery.

La batterie contient du nickel. Ne la démontez pas, ne l'exposez ni au feu ni à l'eau. Ne la mettez pas en court-circuit. Pour la mettre au rebut, conformez-vous à la réglementation en vigueur. Lorsque vous remplacez la batterie, veillez à n'utiliser que les modèles cités dans la liste de pièces détachées adéquate. En effet, une batterie inappropriée risque de prendre feu ou d'exploser.

Akkus enthalten geringe Mengen von Nickel. Sie dürfen nicht zerlegt, wiederaufgeladen, kurzgeschlossen, oder Feuer oder Wasser ausgesetzt werden. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Beim Ersetzen der Batterie nur Batterien des Typs verwenden, der in der Ersatzteilliste aufgeführt ist. Der Einsatz falscher Batterien kann zu Entzündung oder Explosion führen.

מארז הסוללה מכיל כמות קטנה של ניקל
וקדמיום. אין לפרק את מארז הסוללה, להשליך
אותו לאש או למים או לקצר אותו. יש לסלק את
מארז הסוללה הסוללה כנדרש על ידי התקנות
והחוקים המקומיים. יש להשתמש רק בסוללה
המופיעה ברשימת החלקים המתאימה בזמן החלפת
מארז הסוללה. שימוש בסוללה לא מתאימה עלול
לגרום להצתה או התפוצצות של הסוללה.

La batteria contiene piccole quantità di nichel. Non smontarla, gettarla nel fuoco o nell'acqua né cortocircuitarla. Smaltirla secondo la normativa in vigore (DPR 915/82, successive disposizioni e disposizioni locali). Quando si sostituisce la batteria, utilizzare soltanto i tipi inseriti nell'appropriato Catalogo parti. L'impiego di una batteria non adatta potrebbe determinare l'incendio o l'esplosione della batteria stessa.

バッテリー・パックには少量のニッケルが含まれています。バッテリー・パックを分解したり、火または水の中に投げ込んだり、ショートさせないでください。バッテリー・パックの廃棄にあたっては、地方自治体の条例または規則に従ってください。バッテリー・パックを交換するときは、適切なパーツ・リストにあるバッテリーだけを使用してください。誤ったバッテリーを使用すると、バッテリーが発火したり、爆発したりすることがあります。

Las baterías contienen pequeñas cantidades de níquel. No las desmonte, ni recargue, ni las eche al fuego o al agua ni las cortocircuite. Deséchelas tal como dispone la normativa local. Utilice sólo baterías que se encuentren en la lista de piezas al sustituir la batería. La utilización de una batería no apropiada puede provocar la ignición o explosión de la misma.

Safety notice 4

⚠ DANGER

The lithium battery can cause a fire, an explosion, or a severe burn. Do not recharge it, remove its polarized connector, disassemble it, heat it above 100°C (212°F), incinerate it, or expose its cell contents to water. Dispose of the battery as required by local ordinances or regulations. Use only the battery in the appropriate parts listing. Use of an incorrect battery can result in ignition or explosion of the battery.

La pile de sauvegarde contient du lithium. Elle présente des risques d'incendie, d'explosion ou de brûlures graves. Ne la rechargez pas, ne retirez pas son connecteur polarisé et ne la démontez pas. Ne l'exposez pas à une temperature supérieure à 100°C, ne la faites pas brûler et n'en exposez pas le contenu à l'eau. Mettez la pile au rebut conformément à la réglementation en vigueur. Une pile inappropriée risque de prendre feu ou d'exploser.

Die Systembatterie ist eine Lithiumbatterie. Sie kann sich entzünden, explodieren oder schwere Verbrennungen hervorrufen. Batterien dieses Typs dürfen nicht aufgeladen, zerlegt, über 100 C erhitzt oder verbrannt werden. Auch darf ihr Inhalt nicht mit Wasser in Verbindung gebracht oder der zur richtigen Polung angebrachte Verbindungsstecker entfernt werden. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Beim Ersetzen der Batterie nur Batterien des Typs verwenden, der in der Ersatzteilliste aufgeführt ist. Der Einsatz falscher Batterien kann zu Entzündung oder Explosion führen.

סוללת הליתיום עלולה לגרום לשריפה, להתפוצצות או לכוויות קשות. אין לטעון אותה מחדש, לסלק את המחבר המקוטב שלה, לפרק אותה או לחמם אותה לטמפרטורה העולה על 100 מעלות צלזיוס. אין לשרוף את הסוללה ואין לחשוף את תוכן התא למים. יש לסלק את הסוללה כנדרש בתקנות ובחוקים המקומיים. יש להשתמש רק בסוללה המופיעה ברשימת החלקים המתאימים. שימוש בסוללה אחרת עלול לגרום לסכנת שריפה או התפוצצות.

La batteria di supporto e una batteria al litio e puo incendiarsi, esplodere o procurare gravi ustioni. Evitare di ricaricarla, smontarne il connettore polarizzato, smontarla, riscaldarla ad una temperatura superiore ai 100 gradi centigradi, incendiarla o gettarla in acqua. Smaltirla secondo la normativa in vigore (DPR 915/82, successive disposizioni e disposizioni locali). L'impiego di una batteria non adatta potrebbe determinare l'incendio o l'esplosione della batteria stessa.

リチウム・バッテリーは、火災、爆発、または重症のやけどを引き起こすことがあります。バックアップ・バッテリーの充電、その極性コネクターの取り外し、バッテリー本体の分解、
100 ℃ (212 ˚F) 以上への加熱、焼却、電池の中身を水に浸すことはしないでください。バッテリーを廃棄する場合は地方自治体の条例に従ってください。適切なパーツ・リストにあるバッテリーだけを使用してください。誤ったバッテリーを使用すると、バッテリーが発火したり、爆発したりすることがあります。

La batería de repuesto es una batería de litio y puede provocar incendios, explosiones o quemaduras graves. No la recargue, ni quite el conector polarizado, ni la desmonte, ni caliente por encima de los 100°C (212°F), ni la incinere ni exponga el contenido de sus celdas al agua. Deséchela tal como dispone la normativa local.

Safety notice 5

If the LCD breaks and the fluid from inside the LCD gets into your eyes or on your hands, immediately wash the affected areas with water at least for 15 minutes. Seek medical care if any symptoms caused by the fluid are present after washing.

Si le panneau d'affichage à cristaux liquides se brise et que vous recevez dans les yeux ou sur les mains une partie du fluide, rincez-les abondamment pendant au moins quinze minutes. Consultez un médecin si des symptômes persistent après le lavage.

Die Leuchtstoffröhre im LCD-Bildschirm enthält Quecksilber. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Der LCD-Bildschirm besteht aus Glas und kann zerbrechen, wenn er unsachgemäß behandelt wird oder der Computer auf den Boden fällt. Wenn der Bildschirm beschädigt ist und die darin befindliche Flüssigkeit in Kontakt mit Haut und Augen gerät, sollten die betroffenen Stellen mindestens 15 Minuten mit Wasser abgespült und bei Beschwerden anschließend ein Arzt aufgesucht werden.

אם מסך הגביש הנוזלי (LCD) נשבר והנוזל מתוך המסך בא במגע
עם עיניכם או ידיכם, שטפו את האזורים הנגועים מיד במים במשך
15 דקות לפחות. פנו לקבלת עזרה רפואית אם תסמינים הנובעים
מהמגע עם הנוזל נמשכים לאחר השטיפה.

Nel caso che caso l'LCD si dovesse rompere ed il liquido in esso contenuto entrasse in contatto con gli occhi o le mani, lavare immediatamente le parti interessate con acqua corrente per almeno 15 minuti; poi consultare un medico se i sintomi dovessero permanere.

LCD が破損し、 LCD の中の液体が目に入ったり、手に触れたりした場合は、液体が触れた部分を少なくとも 15 分間洗い流してください。洗い流した後に、液体によって何らかの症状が現れた場合は、医師の治療を受けてください。

Si la LCD se rompe y el fluido de su interior entra en contacto con sus ojos o sus manos, lave inmediatamente las áreas afectadas con agua durante 15 minutos como mínimo. Obtenga atención medica si se presenta algún síntoma del fluido despues de lavarse.

Safety notice 6

⚠ DANGER

To avoid shock, do not remove the plastic cover that protects the lower part of the inverter card.

Afin d'éviter tout risque de choc électrique, ne retirez pas le cache en plastique protégeant la partie inférieure de la carte d'alimentation.

Aus Sicherheitsgründen die Kunststoffabdeckung, die den unteren Teil der Spannungswandlerplatine umgibt, nicht entfernen.

כדי למנוע התחשמלות, אין להסיר את מכסה הפלסטיק
המגן על חלקו התחתון של הכרטיס ההפוך.

Per evitare scosse elettriche, non rimuovere la copertura in plastica che avvolge la parte inferiore della scheda invertitore.

感電を防ぐため、インバーター・カードの下部を保護しているプラスチック・カバーを外さないでください。

Para evitar descargas, no quite la cubierta de plástico que rodea la parte baja de la tarjeta invertida.

Safety notice 7

⚠ DANGER

Though the main batteries have low voltage, a shorted or grounded battery can produce enough current to burn personnel or combustible materials.

Bien que le voltage des batteries principales soit peu élevé, le court-circuit ou la mise à la masse d'une batterie peut produire suffisamment de courant pour brûler des matériaux combustibles ou causer des brûlures corporelles graves.

Obwohl Hauptbatterien eine niedrige Spannung haben, können sie doch bei Kurzschluß oder Erdung genug Strom abgeben, um brennbare Materialien zu entzünden oder Verletzungen bei Personen hervorzurufen.

אף שהסוללות הראשיות הן בעלות מתח נמוך, סוללה
מקוצרת או מוארקת עלולה להפיק זרם מספיק לגרימת
כוויות או להצתת חומרים דליקים.

Sebbene le batterie di alimentazione siano a basso voltaggio, una batteria in corto circuito o a massa può fornire corrente sufficiente da bruciare materiali combustibili o provocare ustioni ai tecnici di manutenzione.

メイン・バッテリーの電圧は低くても、ショートしたり、接地したバッテリーが、作業者にやけどを負わせたり、可燃物を燃やすだけの電流を発生させる場合があります。

Aunque las baterías principales tienen un voltaje bajo, una batería cortocircuitada o con contacto a tierra puede producir la corriente suficiente como para quemar material combustible o provocar quemaduras en el personal.

Safety notice 8

⚠ DANGER

Before removing any FRU, turn off the computer, unplug all power cords from electrical outlets, remove the battery pack, and then disconnect any interconnecting cables.

Avant de retirer une unité remplaçable en clientèle, mettez le système hors tension, débranchez tous les cordons d'alimentation des socles de prise de courant, retirez la batterie et déconnectez tous les cordons d'interface.

Die Stromzufuhr muß abgeschaltet, alle Stromkabel aus der Steckdose gezogen, der Akku entfernt und alle Verbindungskabel abgenommen sein, bevor eine FRU entfernt wird.

לפני סילוק FRU כלשהו, יש לכבות את המחשב,
לנתק את כל כבלי החשמל משקעי החשמל, להוציא
את מארז הסוללה, ואז לנתק כבלי חיבור אחרים
אם יש כאלה.

Prima di rimuovere qualsiasi FRU, spegnere il sistema, scollegare dalle prese elettriche tutti i cavi di alimentazione, rimuovere la batteria e poi scollegare i cavi di interconnessione.

FRU を取り外す前に、 ThinkPad の電源を切って、すべての電源コードをコンセントから外してください。次に、バッテリー・パックを外し、相互接続ケーブルを外してください。

Antes de quitar una FRU, apague el sistema, desenchufe todos los cables de las tomas de corriente eléctrica, quite la batería y, a continuación, desconecte cualquier cable de conexión entre dispositivos.

Laser compliance statement

Some models of Lenovo computer are equipped from the factory with an optical storage device such as a CD-ROM drive or a DVD-ROM drive. Such devices are also sold separately as options. If one of these drives is installed, it is certified in the U.S. to conform to the requirements of the Department of Health and Human Services 21 Code of Federal Regulations (DHHS 21 CFR) Subchapter J for Class 1 laser products. Elsewhere, the drive is certified to conform to the requirements of the International Electrotechnical Commission (IEC) 825 and CENELEC EN 60 825 for Class 1 laser products.

If a CD-ROM drive, a DVD-ROM drive, or another laser device is installed, note the following:

⚠ CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

O uso de controles, ajustes ou desempenho de procedimentos diferentes daqueles aqui especificados pode resultar em perigosa exposição à radiação.

凡未在这里指明的任何控制用法、调整、行为，
都会导致严重后果。

Pour éviter tout risque d'exposition au rayon laser, respectez les consignes de réglage et d'utilisation des commandes, ainsi que les procédures décrites.

Werden Steuer- und Einstellelemente anders als hier festgesetzt verwendet, kann gefährliche Laserstrahlung auftreten.

Az itt előírt eljárásoktól, beállításoktól és vezérlésektől
eltérni a lézersugárzás veszélye miatt kockázatos !

L'utilizzo di controlli, regolazioni o l'esecuzione di procedure diverse da quelle specificate possono provocare l'esposizione a.

Использование элементов настройки и
выполнение процедур иных, чем указано
здесь, может привести к опасному
радиационному облучению.

Použitie kontrôl, úprav alebo iných vykonaní od iných
výrobcov, ako je v tomto špecifikované, mohlo by mať
za následok nebezpečenstvo vystavenia sa vyžiarovaniu.

本書で指定された内容以外の、お客様による整備、調整、または手順を行った場合、レーザー光の放射の危険があります。

El uso de controles o ajustes o la ejecución de procedimientos distintos de los aquí especificados puede provocar la exposición a radiaciones peligrosas.

Opening the CD-ROM drive, the DVD-ROM drive, or any other optical storage device could result in exposure to hazardous laser radiation. There are no serviceable parts inside those drives. **Do not open**.

A CD-ROM drive, a DVD-ROM drive, or any other storage device installed may contain an embedded Class 3A or Class 3B laser diode. Note the following:

⚠ DANGER

Emits visible and invisible laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

Radiação por raio laser ao abrir. Não olhe fixo no feixe de luz, não olhe diretamente por meio de instrumentos óticos e evite exposição direta com o feixe de luz.

开启时会有激光发射时，请勿盯视激光光束，请勿直接查看
视觉仪器，并且避免直接接触在激光光束之中。

Rayonnement laser si carter ouvert. Évitez de fixer le faisceau, de le regarder directement avec des instruments optiques, ou de vous exposer au rayon.

Laserstrahlung bei geöffnetem Gerät. Nicht direkt oder über optische Instrumente in den Laserstrahl sehen und den Strahlungsbereich meiden.

Kinyitáskor lézersugár ! Ne nézzen bele se szabad szemmel, se optikai eszközökkel. Kerülje a sugárnyalábbal való érintkezést!

Aprendo l'unità vengono emesse radiazioni laser. Non fissare il fascio, non guardarlo direttamente con strumenti ottici e evitare l'esposizione diretta al fascio.

Открывая, берегитесь лазерного излучения.
Не смотрите на луч, не разглядывайте его
с помощью оптических инструментов, а также
избегайте прямого воздействия лазерного луча.

Keď je laserová jednotka otvorená. Vyhnite sa priamemu
pohľadu a nehľadte priamo s optickými nástrojmi do ľúča
a vyhnite sa priamemu vystaveniu ľúčov.

開けるとレーザー光が放射されます。光線を見つめたり、光学機械を使って直接見たりしないでください。

Radiación láser al abrir. No mire fijamente ni examine con instrumental óptico el haz de luz. Evite la exposición directa al haz.

Important service information

This chapter presents the following important service information:

- "Strategy for replacing FRUs" on page 16
  - "Strategy for replacing a hard disk drive" on page 17
  - "Important notice for replacing a system board" on page 17
- "Important information about replacing RoHS compliant FRUs" on page 18

Important:

BIOS and device driver fixes are customer-installable. The BIOS and device drivers are posted on the customer support site:
http://support.lenovo.com.

Strategy for replacing FRUs

Before replacing parts:

Make sure that all software fixes, drivers, and BIOS downloads are installed before replacing any FRUs listed in this manual.

After a system board is replaced, ensure that the latest BIOS is loaded to the system board before completing the service action.

To download software fixes, drivers, and BIOS, follow the steps below:

1. Go to http://support.lenovo.com.
2. Enter the serial number or select a product or use Lenovo smart downloading.
3. Select the BIOS/Driver/Applications and download.
4. Follow the directions on the screen and install the necessary software.

Use the following strategy to prevent unnecessary expense for replacing and servicing FRUs:

- If you are instructed to replace an FRU, but the replacement does not solve the problem, reinstall the original FRU before you continue.
- Some computers have both a processor board and a system board. If you are instructed to replace either of them, and replacing one of them does not solve the problem, reinstall that board, and then replace the other one.
- If an adapter or a device consists of more than one FRU, any of the FRUs may be the cause of the error. Before replacing the adapter or device, remove the FRUs one by one to see if the symptoms change. Replace only the FRU that changed the symptoms.

Attention: The setup configuration on the computer you are servicing may have been customized. Running Automatic Configuration may alter the settings. Note the current configuration settings (using the View Configuration option); then, when service has been completed, verify that those settings remain in effect.

Strategy for replacing a hard disk drive

Always try to run a low-level format before replacing a hard disk drive. This will cause all customer data on the hard disk to be lost. Make sure that the customer has a current backup of the data before performing this action.

Attention: The drive startup sequence in the computer you are servicing may have been changed. Be extremely careful during write operations such as copying, saving, or formatting. If you select an incorrect drive, data or programs can be overwritten.

Important notice for replacing a system board

Some components mounted on a system board are very sensitive. Improper handling can cause damage to those components, and may cause a system malfunction.

Attention: When handling a system board:

- Do not drop the system board or apply any excessive force to it.
- Avoid rough handling of any kind.
- Avoid bending the system board and hard pushing to prevent cracking at each BGA (Ball Grid Array) chipset.

Important information about replacing RoHS compliant FRUs

RoHS, The Restriction of Hazardous Substances in Electrical and Electronic Equipment Directive (2002/95/EC) is a European Union legal requirement affecting the global electronics industry. RoHS requirements must be implemented on Lenovo products placed on the market after June 2006. Products on the market before June 2006 are not required to have RoHS compliant parts. If the original FRU parts are non-compliant, replacement parts can also be non-compliant. In all cases if the original FRU parts are RoHS compliant, the replacement part must also be RoHS compliant.

Note: RoHS and non-RoHS FRU part numbers with the same fit and function are identified with unique FRU part numbers.

Lenovo plans to transit to RoHS compliance well before the implementation date and expects its suppliers to be ready to support Lenovo's requirements and schedule in the EU. Products sold in 2005 and 2006 will contain some RoHS compliant FRUs. The following statement pertains to these products and any product Lenovo produces containing RoHS compliant FRUs.

RoHS compliant FRUs have unique FRU part numbers. Before or after the RoHS implementation date, failed RoHS compliant parts must always be replaced with RoHS compliant ones, so only the FRUs identified as compliant in the system HMM or direct substitutions for those FRUs may be used.

Products marketed before June 2006		Products marketed after June 2006	
Current or original part	**Replacement FRU**	**Current or original part**	**Replacement FRU**
Non-RoHS	Can be Non-RoHS	Must be RoHS	Must be RoHS
Non-RoHS	Can be RoHS		
Non-RoHS	Can sub to RoHS		
RoHS	Must be RoHS		

Note: A direct substitution is a part with a different FRU part number that is automatically shipped by the distribution center at the time of the order.

General checkout

This chapter presents the following information:

- "What to do first" on page 20
- "Power system checkout" on page 21

Before you go to the checkout, make sure to read the following important notes:

Important notes:

- **Only certified trained personnel can service the computer.**
- **Before replacing any FRU, read the entire page on removing and replacing FRUs.**
- **Carefully remove screws for reuse when replacing FRUs.**
- **Be extremely careful during such write operations as copying, saving, or formatting.** Drives in the computer that you are servicing sequence might have been altered. If you select an incorrect drive, data or programs might be overwritten.
- **Replace an FRU only with another FRU of the correct model.** When you replace an FRU, make sure that the machine model and the FRU part number are correct by referring to the FRU parts list.
- **An FRU should not be replaced just because of a single, unreproducible failure.** Single failures can occur for a variety of reasons that have nothing to do with a hardware defect, such as cosmic radiation, electrostatic discharge, or software errors. Consider replacing an FRU only when a problem recurs. If you suspect that an FRU is defective, clear the error logs and run the test again. If the error does not recur, do not replace the FRU.
- **Be careful not to replace a nondefective FRU.**

What to do first

When you do return an FRU, you must include the following information in the parts exchange form or parts return form that you attach to it:

1. Name and phone number of servicer
2. Date of service
3. Date on which the machine failed
4. Date of purchase
5. Procedure index and page number in which the failing FRU was detected
6. Failing FRU name and part number
7. Machine type, model number, and serial number
8. Customer's name and address

Note for warranty: During the warranty period, the customer may be responsible for repair costs if the computer damage was caused by misuse, accident, modification, unsuitable physical or operating environment, or improper maintenance by the customer.

The following is a list of some common items that are not covered under warranty and some symptoms that might indicate that the system was subjected to stress beyond normal use.

Before checking problems with the computer, determine whether the damage is covered under the warranty by referring to the following list:

The following are not covered under warranty:

- LCD panel cracked from the application of excessive force or from being dropped
- Scratched (cosmetic) parts
- Distortion, deformation, or discoloration of the cosmetic parts
- Plastic parts, latches, pins, or connectors that have been cracked or broken by excessive force
- Damage caused by liquid spilled into the system
- Damage caused by the improper insertion of a PC Card or the installation of an incompatible card
- Improper disk insertion or use of an optical drive
- Diskette drive damage caused by pressure on the diskette drive cover, foreign material in the drive, or the insertion of a diskette with multiple labels
- Damaged or bent diskette eject button
- Fuses blown by attachment of a nonsupported device
- Forgotten computer password (making the computer unusable)
- Sticky keys caused by spilling a liquid onto the keyboard
- Use of an incorrect AC adapter on laptop products

The following symptoms might indicate damage caused by nonwarranted activities:

- Missing parts might be a symptom of unauthorized service or modification.
- If the spindle of a hard disk drive becomes noisy, it may have been subjected to excessive force, or dropped.

Power system checkout

To verify a symptom, follow the steps below:

1. Turn off the computer.
2. Connect the AC adapter.
3. Make sure that power is supplied when you turn on the computer.
4. Turn off the computer.
5. Disconnect the AC adapter.
6. Make sure that the battery pack supplies power when you turn on the computer.

If you suspect a power problem, see the appropriate power supply checkout:

- “Checking the AC adapter” on page 21
- “Checking operational charging” on page 21

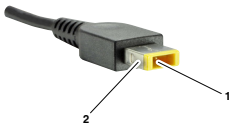
Checking the AC adapter

You are here because the computer fails only when the AC adapter is used.

- If the power-on indicator does not turn on, check the power cord of the AC adapter for correct continuity and installation.
- If the computer does not charge during operation, go to “Checking operational charging”.

To check the AC adapter, follow the steps below:

1. Unplug the AC adapter cable from the computer.
2. Measure the output voltage at the plug of the AC adapter cable. See the following figure:



Pin	Voltage (V DC)
1	+20
2	0

Note: Output voltage for the AC adapter pin No. 2 may differ from the one you are servicing.

3. If the voltage is not correct, replace the AC adapter.
4. If the voltage is acceptable, do the following:

- Replace the system board.
- If the problem persists, go to “Lenovo IdeaPad Flex 10” on page 27.

Note: Noise from the AC adapter does not always indicate a defect.

Checking operational charging

To check whether the battery charges properly during operation, use a discharged battery pack or a battery pack that has less than 50% of the total power remaining when installed in the computer.

Perform operational charging. If the battery status indicator or icon is not lit, remove the battery pack and let it return to room temperature. Reinstall the battery pack. If the charge indicator or icon is still off, replace the battery pack.

If the charge indicator is still not lit, replace the system board.

Related service information

This chapter presents the following information:

- “Restoring the factory contents by using Recovery system” on page 23
- “Passwords” on page 24
- “Power management” on page 25

Restoring the factory contents by using Recovery system

Restore of factory default

The Lenovo IdeaPad Flex 10 computer comes with pre-installed Recovery System. In order to save application files and the initial backed up files of the system, the hard disk in a Lenovo computer includes a hidden partition when it is shipped. If you need to restore the system to the point of your first boot up, just enter Recovery System (Push-button reset).

Note: This will delete all the new data on the system partition (C drive), which is not recoverable. Make sure to back up your critical data before you perform this action.

Passwords

As many as three passwords may be needed for any Lenovo computer: the power-on password (POP), the hard disk password (HDP), and the supervisor password.

If any of these passwords has been set, a prompt for it appears on the screen whenever the computer is turned on. The computer does not start until the password is entered.

Power-on password

A power-on password (POP) protects the system from being powered on by an unauthorized person. The password must be entered before an operating system can be booted.

Hard-disk password

There are two hard-disk passwords (HDPs):

+ User HDP - for the user

+ Master HDP - for the system administrator, who can use it to get access to the hard disk drive even if the user has changed the user HDP

Attention: If the user HDP has been forgotten, check whether a master HDP has been set. If it has, it can be used for access to the hard disk drive. If no master HDP is available, neither Lenovo nor Lenov authorized service technicians provide any services to reset either the user or the master HDP, or to recover data from the hard disk drive. The hard disk drive can be replaced for a scheduled fee.

Supervisor password

A supervisor password protects the system information stored in the BIOS. The user must enter the supervisor password to get access to the BIOS and change the system configuration.

Attention: If you forget the password, there is no service procedure to reset the password. The system board must be replaced for a scheduled fee.

Power management

Note: Power management modes are not supported for an APM operating system.

To reduce power consumption, the computer has two power management modes: screen blank and sleep (standby).

Screen blank state

If the time set on the “Turn off monitor” timer in the operating system expires, the LCD backlight turns off. You can also turn off the LCD backlight by pressing .

To end screen blank state and resume normal operation, press .

Putting the computer to sleep or shutting it down

When you have finished working with your computer, you can put it to sleep or shut it down.

Putting your computer to sleep

If you will be away from your computer for only a short time, put the computer to sleep. When the computer is in sleep mode, you can quickly wake it to resume use, bypassing the startup process. To put the computer to sleep:

- Close the display panel.
- Press the Power button.
- Move your cursor to the lower-right corner of the screen to open the charms bar, then select **Settings** → **Power** → **Sleep**.
- Right-click the Windows icon on the desktop lower-left corner. Then select **Sleep** from the **Shut down** menu options.

Attention: Wait until the power indicator light starts blinking (indicating that the computer is in sleep mode) before you move your computer. Moving your computer while the hard disk is spinning can damage the hard disk, causing loss of data.

To wake the computer, do one of the following:

- Press any key on the keyboard.
- Press the Power button.

Shutting down the computer

If you are not going to use your computer for a long time, shut it down.

To shut down your computer:

- Open the charms, then select **Settings** → **Power** → **Shut down**.
- Right-click the Windows icon on the desktop lower-left corner. Then select **Shut down** from the **Shut down** menu options.

Lenovo IdeaPad Flex 10

This chapter presents the following product-specific service references and product-specific parts information:

- “Specifications” on page 27
- “Status indicators” on page 29
- “Fn key combinations” on page 30
- “FRU replacement notices” on page 31
- “Removing and replacing an FRU” on page 32
- “Locations” on page 49
- “Parts list” on page 51

Specifications

The following table lists the specifications of the Lenovo IdeaPad Flex 10:

Table 1. Specifications

Feature	Description
Processor	View the system properties of your computer. You can do this as follows: Open the **Control Panel**, and then select **System**.
Bus architecture	• DDR3L 1066/1333(N3150) SATA2.0 No I2C HDMI1.4a
Graphic Chipset	• Intel Gen7 graphics
Display	• 10.1 inch, 1366 × 768 pixel, Anti-Glare type White LED panel
Standard memory	• DDR3L 4 × 16bit, Onboard (max 4 GB)
CMOS	• 256 bytes
HDD	• 2.5 inch, HDD 7mm, 500 GB / 320 GB, 5400rpm
Optical drive	• Support USB external ODD
I/O port	• Combo audio jack × 1 • HDMI port × 1 • USB 2.0 port × 1, USB 3.0 port × 1

Table 1. Specifications (continued)

Feature	Description
Audio	• Combo audio jack • Integrated Speakers Stereo × 2 • Built-in microphone × 1
PCI Express Mini Card slot	• 1 slot
Bluetooth wireless	• Only support BT&WIFI combo module
Keyboard	• 6-Row, Lenovo Keyboard
Touch pad	• One piece touchpad
Integrated camera	• 1.0 Mega or 720P HD
Battery	• 3 cells, 24WH
AC adapter	• 20 V, 45 W
Pre-installed operating system	• Windows 8

Status indicators

The system status indicators below show the computer status:

Table 2. Status indicators

Indicator	Indicator status	Charge status	Meaning
Battery status indicator	On (white)	Charging	The battery's charge is greater than 80%.
		Discharging	The battery's charge is greater than 20%.
	On (amber)	Discharging	The battery's charge is less than 20%, but above 5%.
	Blinking (white)	Charging	The battery's charge is less than 80%, but above 20%.
	Blinking slowly (amber)	Charging	The battery's charge is less than 20%, but above 5%.
	Blinking quickly (amber)	Discharging/ Charging	The battery's charge is less than 5%.
	Off	Discharging	The computer is off.

Fn key combinations

The following table describes the functions of Fn key combinations.

Table 3. Function key combinations

:	Mutes/unmutes the sound.
:	Decreases the volume level.
:	Increases the volume level.
:	Closes the currently active window.
:	Refreshes the desktop or the currently active window.
:	Enables/disables the touchpad.
:	Enables/disables Airplane mode.
:	Displays all currently active apps.
:	Turns on/off the backlight of the LCD screen.
:	Toggles the display between the computer and an external device.
:	Decreases display brightness.
:	Increases display brightness.

FRU replacement notices

This section presents notices related to removing and replacing parts. Read this section carefully before replacing any FRU.

Screw notices

Loose screws can cause a reliability problem. In the Lenovo computer, this problem is addressed with special nylon-coated screws that have the following characteristics:

- They maintain tight connections.
- They do not easily come loose, even with shock or vibration.
- They are harder to tighten.

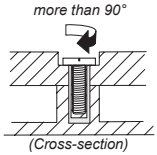
Do the following when you service this machine:

- Keep the screw kit in your tool bag.
- Carefully remove screws for reuse when replacing FRUs.
- Use a torque screwdriver if you have one.

Tighten screws as follows:

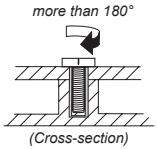
- **Plastic to plastic**

  Turn an additional 90° after the screw head touches the surface of the plastic part:



- **Logic card to plastic**

  Turn an additional 180° after the screw head touches the surface of the logic card:



- **Torque driver**

  If you have a torque screwdriver , refer to the “Torque” column for each step.
- Make sure that you use the correct screws. If you have a torque screwdriver, tighten all screws firmly to the torque shown in the table. **Carefully remove screws for reuse when replacing FRUs. Make sure that all screws are tightened firmly.**
- Ensure torque screwdrivers are calibrated correctly following country specifications.

Removing and replacing an FRU

This section presents exploded figures with the instructions to indicate how to remove and replace the FRU. Make sure to observe the following general rules:

1. Do not attempt to service any computer unless you have been trained and certified. An untrained person runs the risk of damaging parts.
2. Before replacing any FRU, review “FRU replacement notices” on page 31.
3. Begin by removing any FRUs that have to be removed before the failing FRU. Any of such FRUs are listed at the top of the page. Remove them in the order in which they are listed.
4. Follow the correct sequence in the steps to remove the FRU, as given in the figures by the numbers in square callouts.
5. When turning a screw to replace an FRU, turn it in the direction as given by the arrow in the figure.
6. When removing the FRU, move it in the direction as given by the arrow in the figure.
7. To put the new FRU in place, reverse the removal procedures and follow any of the notes that pertain to replacement. For information about connecting and arranging internal cables, see “Locations” on page 49.
8. When replacing an FRU, use the correct screw as shown in the procedures.

> **⚠ DANGER**
>
> Before removing any FRU, turn off the computer, unplug all power cords from electrical outlets, remove the battery pack, and then disconnect any of the interconnecting cables.

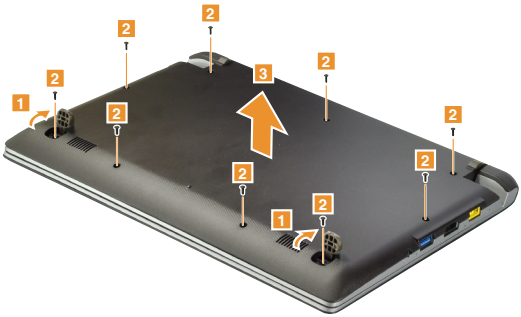
Attention: After replacing an FRU, do not turn on the computer until you have made sure that all screws, springs, and other small parts are in place and none are loose inside the computer. Verify this by shaking the computer gently and listening for rattling sounds. Metallic parts or metal flakes can cause electrical short circuits.

Attention: The system board is sensitive to, and can be damaged by, electrostatic discharge. Before touching it, establish personal grounding by touching a ground point with one hand or using an electrostatic discharge (ESD) strap (P/N 6405959) to remove potential shock reasons.

1010 Base cover

Figure 1. Removal steps of base cover

Open the two foot rubbers in the direction shown by arrows ■ and remove the screws 2. Then remove the base cover 3.



Step	Screw (quantity)	Color	Torque
2	M2 × 6 mm, flat-head, nylok-coated (9) Lower to Upper	Black	1.5 kgf*cm

Note: Applying labels to the base cover

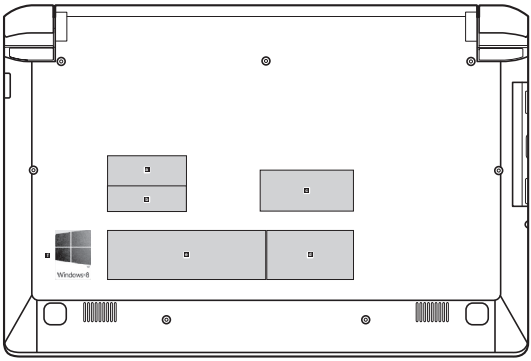
The new base cover FRU is shipped with a kit containing labels of several kinds. When you replace the base cover, you need to apply the following labels:

The following labels need to be peeled off from the old base cover and put on the new base cover.

a Wlan + BT label
b Indonesia label
c KCC label
d Print label
e Rating label
f Win8 GML label

For some models, you also need to apply one or two FCC labels. Check the old base cover; if it has one or two FCC labels, find duplicates of them in the label kit and apply them to the new base cover.

For the location of each label, refer to the following figure:



1020 Battery pack

For access, remove this FRU:

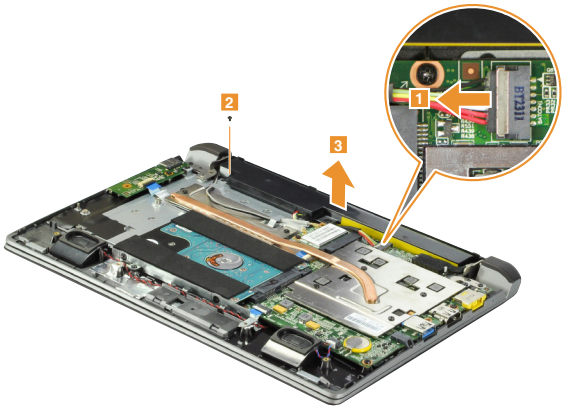
- “1010 Base cover” on page 33

⚠ DANGER

Only use the battery specified in the parts list for your computer. Any other battery could ignite or explode.

Figure 2. Removal steps of battery pack

Unplug the battery connector ■ and remove the screw 2. Then remove the battery pack 3.



Step	Screw (quantity)	Color	Torque
2	M2 × 3 mm, flat-head, nylok-coated (1) Bty to Upper	Black	1.35 kgf*cm

When installing: Make sure that the battery connector is attached firmly.

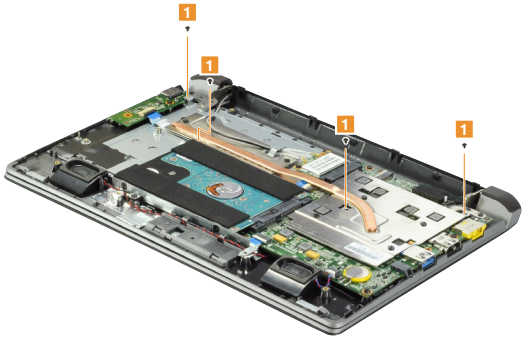
1030 Keyboard

For access, remove these FRUs in order:

- “1010 Base cover” on page 33
- “1020 Battery pack” on page 35

Figure 3. Removal steps of keyboard

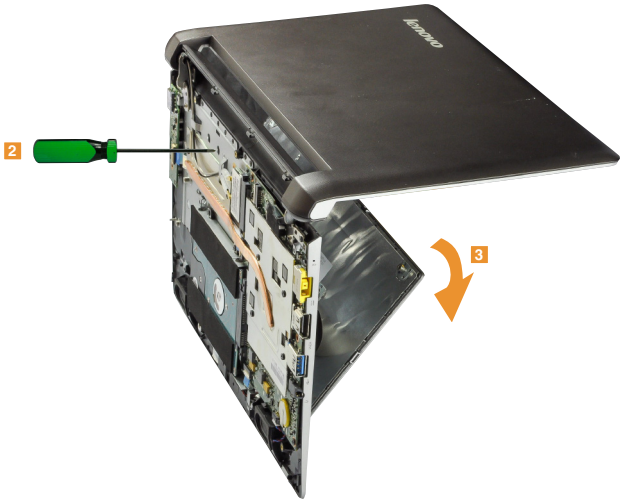
Remove the screws ■ on the bottom.



Step	Screw (quantity)	Color	Torque
■	M2 × 3 mm, flat-head, nylok-coated (4) Lower to Keyboard	Black	1.35 kgf*cm

Figure 3. Removal steps of keyboard (continued)

Push the back of the keyboard in the direction shown by arrow 2. Loosen the keyboard with fingers in the direction shown by arrow 3.



Lift the keyboard a little 4, and then detach the connectors in the direction shown by arrows 5 and 6. Then remove the keyboard.

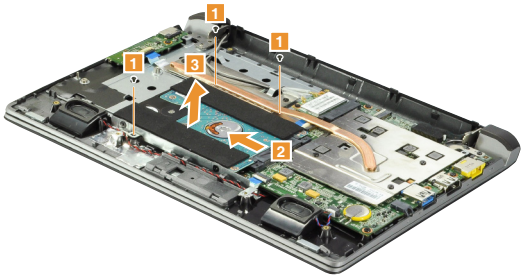
1040 Hard disk drive

For access, remove these FRUs in order:

- “1010 Base cover” on page 33
- “1020 Battery pack” on page 35

Figure 4. Removal steps of hard disk drive

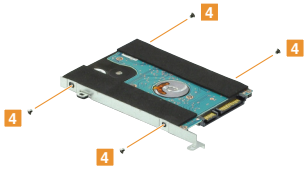
Remove the screws ■. Detach the HDD connector and then remove the hard disk drive from the slot in the direction shown by arrows 2 and 3.



Step	Screw (quantity)	Color	Torque
■	M2 × 3 mm, flat-head, nylok-coated (3) HDD BKT to BASE	Black	1.35 kgf*cm

When installing: Make sure that the HDD connector is attached firmly.

Remove the screws 4 and detach the metal frame from the hard disk drive.



Step	Screw (quantity)	Color	Torque
4	M3 × 3 mm, flat-head, nylok-coated (4) HDD BKT to BASE	Black	2.85 kgf*cm

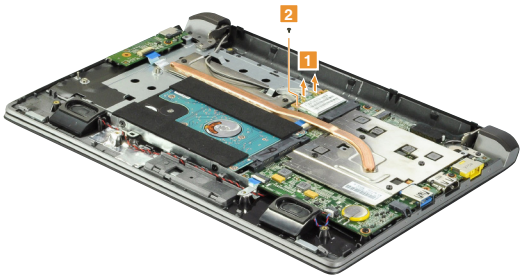
1050 PCI Express Mini Card for wireless LAN

For access, remove these FRUs in order:

- “1010 Base cover” on page 33
- “1020 Battery pack” on page 35

Figure 5. Removal steps of PCI Express Mini Card for wireless LAN

Disconnect the two wireless LAN cables (black, grey) ■, and then remove the screw 2.



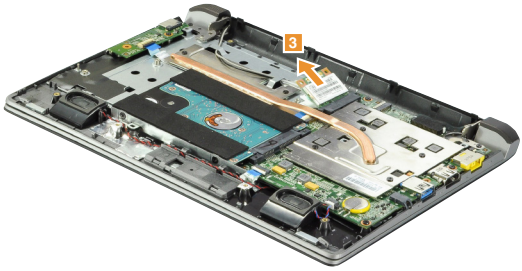
In step ■, unplug the jacks by using the removal tool antenna RF connector (P/N: 08K7159), or pick up the connectors with your fingers and gently unplug them in the direction shown by the arrows.

Notes: The wireless LAN card has 2 cables in step ■.
The wireless LAN card in some models might have 3 cables in step ■.

Step	Screw (quantity)	Color	Torque
2	M2 × 3 mm, flat-head, nylok-coated (1) WLAN to Upper	Black	1.35 kgf*cm

Figure 5. Removal steps of PCI Express Mini Card for wireless LAN (continued)

Remove the card in the direction shown by arrow 3.



When installing:
When installing the wireless LAN card, plug the black cable into the jack labeled **MAIN** and the grey cable into the jack labeled **AUX**.

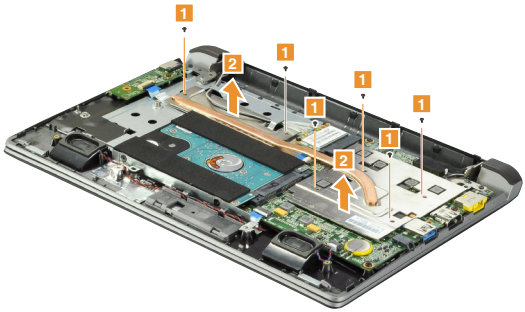
1060 Heat sink

For access, remove these FRUs in order:

- “1010 Base cover” on page 33
- “1020 Battery pack” on page 35

Figure 6. Removal steps of heat sink

Remove the screws ■. Lift the heat sink in the direction shown by arrows 2.



Step	Screw (quantity)	Color	Torque
■	M2 × 3 mm, flat-head, nylok-coated (6) Heat sink to Upper/MB	Black	1.35 kgf*cm

Attention: Do not handle the heat sink assembly roughly. Improper handling can cause distortion or deformation and imperfect contact with components.

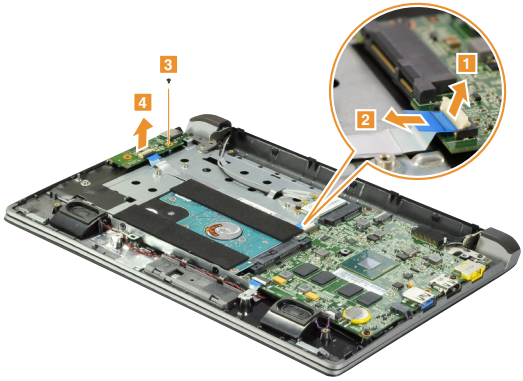
1070 Power button & USB board

For access, remove these FRUs in order:

- “1010 Base cover” on page 33
- “1020 Battery pack” on page 35
- “1060 Heat sink” on page 41

Figure 7. Removal steps of power button & USB board

Detach the connector in the directions shown by arrows 1 and 2. Remove the screw 3, then remove the power button & USB board in the direction shown by arrow 4.



Step	Screw (quantity)	Color	Torque
3	M2 × 3 mm, flat-head, nylok-coated (1) Daughter board to Upper	Black	1.35 kgf*cm

1080 System board

Important notices for handling the system board:

When handling the system board, bear the following in mind.

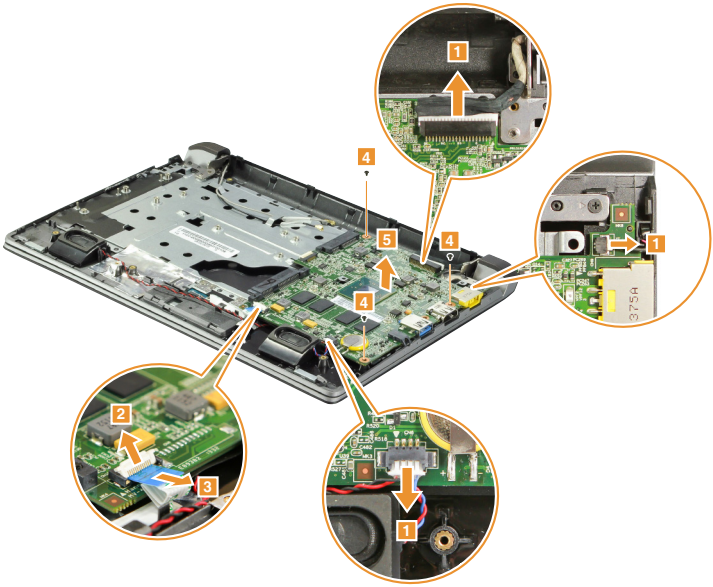
- Be careful not to drop the system board on a bench top that has a hard surface, such as metal, wood, or composite.
- Avoid rough handling of any kind.
- During the whole process, make sure not to drop or stack the system board.
- If you put a system board down, make sure to put it only on a padded surface, such as an ESD mat or conductive corrugated material.

For access, remove these FRUs in order:

- "1010 Base cover" on page 33
- "1020 Battery pack" on page 35
- "1030 Keyboard" on page 36
- "1040 Hard disk drive" on page 38
- "1050 PCI Express Mini Card for wireless LAN" on page 39
- "1060 Heat sink" on page 41
- "1070 Power button & USB board" on page 42

Figure 8. Removal steps of system board (continued)

Detach the connectors in the direction shown by arrows 1, 2 and 3, remove the screws 4. Then remove the system board 5.



Step	Screw (quantity)	Color	Torque
4	M2 × 3 mm, flat-head, nylok-coated (3) MB to Upper	Black	1.35 kgf*cm

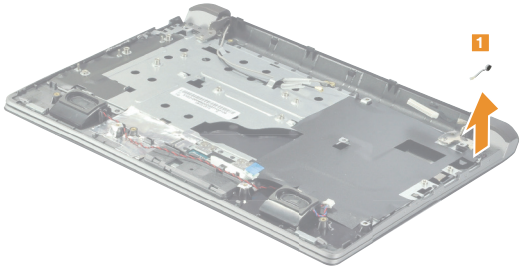
1090 Microphone

For access, remove these FRUs in order:

- “1010 Base cover” on page 33
- “1020 Battery pack” on page 35
- “1030 Keyboard” on page 36
- “1040 Hard disk drive” on page 38
- “1050 PCI Express Mini Card for wireless LAN” on page 39
- “1060 Heat sink” on page 41
- “1070 Power button & USB board” on page 42
- “1080 System board” on page 43

Figure 9. Removal steps of microphone

Remove the microphone in the direction shown by arrow ■.



1100 LCD unit

For access, remove these FRUs in order:

- “1010 Base cover” on page 33
- “1020 Battery pack” on page 35
- “1030 Keyboard” on page 36
- “1040 Hard disk drive” on page 38
- “1050 PCI Express Mini Card for wireless LAN” on page 39
- “1060 Heat sink” on page 41
- “1070 Power button & USB board” on page 42
- “1080 System board” on page 43
- “1090 Microphone” on page 45

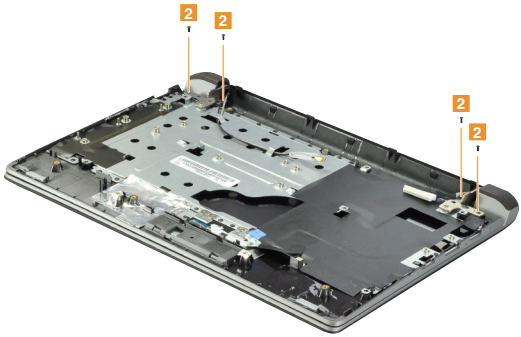
Figure 10. Removal steps of LCD unit

Remove the two screws ■ on the upper case.

Step	Screw (quantity)	Color	Torque
■	M2 × 3 mm, flat-head, nylok-coated (2) Upper to Hinge Black	Black	1.35 kgf*cm

Figure 10. Removal steps of LCD unit (continued)

Remove the screws 2.



Step	Screw (quantity)	Color	Torque
2	M2 × 4 mm, flat-head, nylok-coated (4) Hinge to Upper	Black	1.5 kgf*cm

Open the hinges 3, then remove the upper case from the LCD unit 4 and 5.

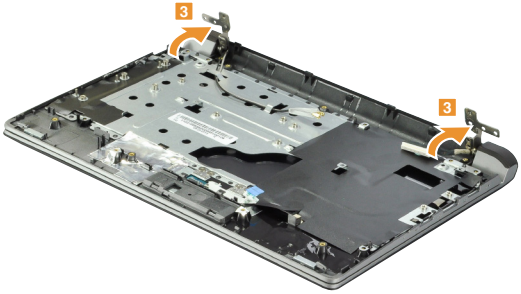
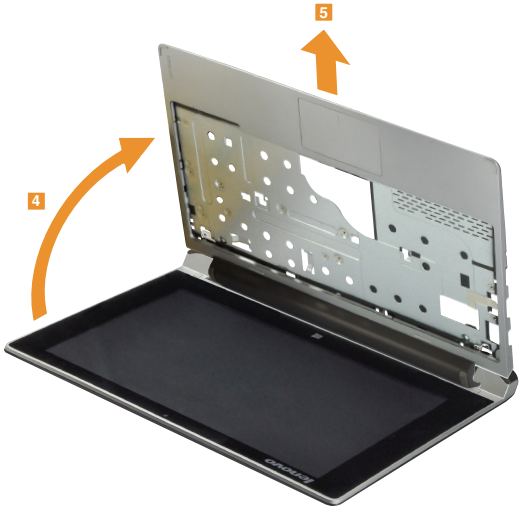


Figure 10. Removal steps of LCD unit (continued)



Locations

Front view and right-side view

1 Integrated camera (on select models)
2 Wireless LAN antennas
3 Wireless WAN antennas (on select models)
4 Multi-touch screen
5 Windows button
6 Touchpad
7 Volume button
8 Power button
9 Battery status indicator

Note: For the description of each indicator, see “Status indicators” on page 29.

10 USB port

Bottom and Left-side view

1 Speakers
2 Combo audio jack
3 USB port
4 HDMI port
5 AC power adapter jack
6 Built-in microphone

Parts list

This section presents the following service parts:

- “Overall” on page 52
- “Keyboard” on page 54
- “Miscellaneous parts” on page 58
- “Screws” on page 58
- “AC adapters” on page 59
- “Power cords” on page 60

Note:

Each FRU is available for all types or models, unless specific types or models are specified.

Overall

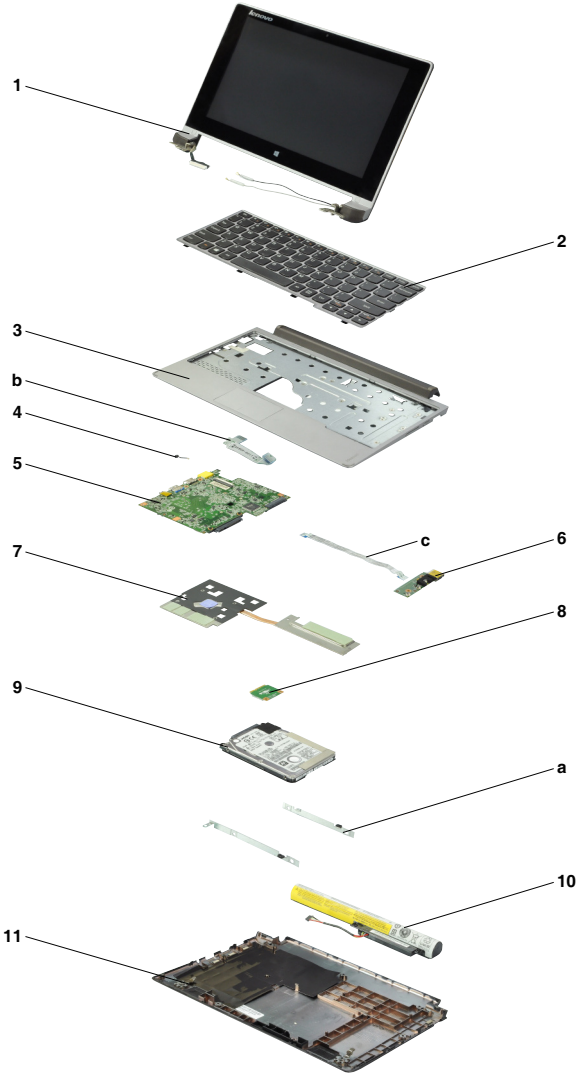


Table 4. Parts list—Overall

No.	FRU	FRU no.	CRU ID.
a-c	See “Miscellaneous parts” on page 58.		
1	Flex10 LCD Module Black	90400244	N
1	Flex10 LCD Module Brown	90400245	N
2	Keyboard (see “Keyboard” on page 54.)		
3	Flex10 Upper Case Black	90204582	N
3	Flex10 Upper Case Brown	90204583	N
4	Flex10 MIC 1016-00081/80	90204586	N
5	Flex10 MB N3510 2G	90005233	N
5	Flex10 MB W8S N3510 2G	90005234	N
5	Flex10 MB W8P N3510 2G	90005235	N
5	Flex10 MB N2810 2G	90005236	N
5	Flex10 MB W8S N2810 2G	90005237	N
5	Flex10 MB W8P N2810 2G	90005238	N
5	Flex10 MB N2805 2G	90005239	N
5	Flex10 MB W8S N2805 2G	90005240	N
5	Flex10 MB W8P N2805 2G	90005241	N
5	Flex10 MB N2910 2G	90005242	N
5	Flex10 MB W8S N2910 2G	90005243	N
5	Flex10 MB W8P N2910 2G	90005244	N
5	Flex10 MB N3510 4G	90005245	N
5	Flex10 MB W8S N3510 4G	90005246	N
5	Flex10 MB W8P N3510 4G	90005247	N
5	Flex10 MB N2810 4G	90005248	N
5	Flex10 MB W8S N2810 4G	90005249	N
5	Flex10 MB W8P N2810 4G	90005250	N
5	Flex10 MB N2805 4G	90005251	N
5	Flex10 MB W8S N2805 4G	90005252	N
5	Flex10 MB W8P N2805 4G	90005253	N
5	Flex10 MB N2910 4G	90005254	N
5	Flex10 MB W8S N2910 4G	90005255	N
5	Flex10 MB W8P N2910 4G	90005256	N
6	Flex10 Power Button&USB Board	90005257	N
7	Flex10 HeatSink1104-00274/75	90204590	N
8	Wlan, Cbt BCM943142HM 1x1BGN+BT4.0 HMC	20200222	N
8	Wlan, Liteon WB335 1x1BGN+BT4.0 HMC	20200437	N
9	HDD, 500G 5400RPM WD MN500S (6G)	16200395	N
9	HDD, 500G 5400RPM Seagate Yarra-1D 6G	16200383	N
9	HDD, 500G 5400RPM HGST Jaguar B7 (6G)	16200404	N
9	HDD, 320G 5400RPM WD MN500S (6G)	16200551	N
9	HDD, 320G 5400RPM Seagate Yarra-1D 6G	16200384	N
9	HDD, 320G 5400RPM Seagate Jaguar B7 (6G)	16200405	N
10	Battery, Flex10s SY L13S3Z61 11.1V24Wh 3cellBty	121500209	N
11	Flex10 Lower Case Black	90204584	N
11	Flex10 Lower Case Brown	90204585	N
—	AC adapter (see “AC adapters” on page 59).		

Keyboard

Table 5. Parts list—Keyboard

Language			P/N	CRU ID.
Black key / Grey frame	Chicony	English	25212879	N
		U.K. English	25212880	N
		Italian	25212881	N
		Spanish	25212882	N
		Turkish	25212883	N
		Thai	25212884	N
		Portuguese	25212885	N
		Latin	25212886	N
		Canadian Bilingual (En+Fr)	25212887	N
		Korean	25212888	N
		Traditional Chinese	25212889	N
		Russian	25212890	N
		French	25212891	N
		German	25212892	N
		Arabic	25212893	N
		Brazilian	25212894	N
		Japanese	25212895	N
		Dutch	25212896	N
		Greek	25212897	N
		Hebrew	25212898	N
		Hungarian	25212899	N
		Nordic	25212900	N
		Belgian	25212901	N
		Icelandic	25212902	N
		Slovenian	25212903	N
		Swiss	25212904	N
		US international	25212905	N
		Czech&Slovak	25212906	N
		Bulgarian	25212907	N
		Indic	25212908	N
	Sunrex	English	25212909	N
		U.K. English	25212910	N
		Italian	25212911	N
		Spanish	25212912	N
		Turkish	25212913	N
		Thai	25212914	N
		Portuguese	25212915	N
		Latin	25212916	N
		Canadian Bilingual (En+Fr)	25212917	N
		Korean	25212918	N
		Traditional Chinese	25212919	N
		Russian	25212920	N
		French	25212921	N
		German	25212922	N
		Arabic	25212923	N
		Brazilian	25212924	N

Table 5. Parts list—Keyboard (continued)

Language			P/N	CRU ID.
Black key / Grey frame (continued)	Sunrex (continued)	Dutch	25212926	N
		Greek	25212927	N
		Hebrew	25212928	N
		Hungarian	25212929	N
		Nordic	25212930	N
		Belgian	25212931	N
		Icelandic	25212932	N
		Slovenian	25212933	N
		Swiss	25212934	N
		US international	25212935	N
		Czech&Slovak	25212936	N
		Bulgarian	25212937	N
		Indic	25212938	N
	Dafon	English	25212939	N
		U.K. English	25212940	N
		Italian	25212941	N
		Spanish	25212942	N
		Turkish	25212943	N
		Thai	25212944	N
		Portuguese	25212945	N
		Latin	25212946	N
		Canadian Bilingual (En+Fr)	25212947	N
		Korean	25212948	N
		Traditional Chinese	25212949	N
		Russian	25212950	N
		French	25212951	N
		German	25212952	N
		Arabic	25212953	N
		Brazilian	25212954	N
		Japanese	25212955	N
		Dutch	25212956	N
		Greek	25212957	N
		Hebrew	25212958	N
		Hungarian	25212959	N
		Nordic	25212960	N
		Belgian	25212961	N
		Icelandic	25212962	N
		Slovenian	25212963	N
		Swiss	25212964	N
		US international	25212965	N
		Czech&Slovak	25212966	N
		Bulgarian	25212967	N
		Indic	25212968	N
Black key / Black frame	Chicony	English	25210801	N
		U.K. English	25210802	N
		Italian	25210803	N

Table 5. Parts list—Keyboard (continued)

Language			P/N	CRU ID.
Black key / Black frame (continued)	Chicony (continued)	Spanish	25210804	N
		Turkish	25210805	N
		Thai	25210806	N
		Portuguese	25210807	N
		Latin	25210808	N
		Canadian Bilingual (En+Fr)	25210809	N
		Korean	25210810	N
		Traditional Chinese	25210811	N
		Russian	25210812	N
		French	25210813	N
		German	25210814	N
		Arabic	25210815	N
		Brazilian	25210816	N
		Japanese	25210817	N
		Dutch	25210818	N
		Greek	25210819	N
		Hebrew	25210820	N
		Hungarian	25210821	N
		Nordic	25210822	N
		Belgian	25210823	N
		Icelandic	25210824	N
		Slovenian	25210825	N
		Swiss	25210826	N
		US international	25210827	N
		Czech&Slovak	25210828	N
		Bulgarian	25210829	N
		Indic	25210830	N
	Sunrex	English	25210831	N
		U.K. English	25210832	N
		Italian	25210833	N
		Spanish	25210834	N
		Turkish	25210835	N
		Thai	25210836	N
		Portuguese	25210837	N
		Latin	25210838	N
		Canadian Bilingual (En+Fr)	25210839	N
		Korean	25210840	N
		Traditional Chinese	25210841	N
		Russian	25210842	N
		French	25210843	N
		German	25210844	N
		Arabic	25210845	N
		Brazilian	25210846	N
		Dutch	25210848	N
		Greek	25210849	N
		Hebrew	25210850	N
		Hungarian	25210851	N

Table 5. Parts list—Keyboard (continued)

Language			P/N	CRU ID.
Black key / Black frame (continued)	Sunrex (continued)	Nordic	25210852	N
		Belgian	25210853	N
		Icelandic	25210854	N
		Slovenian	25210855	N
		Swiss	25210856	N
		US international	25210857	N
		Czech&Slovak	25210858	N
		Bulgarian	25210859	N
		Indic	25210860	N
	Dafon	English	25210861	N
		U.K. English	25210862	N
		Italian	25210863	N
		Spanish	25210864	N
		Turkish	25210865	N
		Thai	25210866	N
		Portuguese	25210867	N
		Latin	25210868	N
		Canadian Bilingual (En+Fr)	25210869	N
		Korean	25210870	N
		Traditional Chinese	25210871	N
		Russian	25210872	N
		French	25210873	N
		German	25210874	N
		Arabic	25210875	N
		Brazilian	25210876	N
		Japanese	25210877	N
		Dutch	25210878	N
		Greek	25210879	N
		Hebrew	25210880	N
		Hungarian	25210881	N
		Nordic	25210882	N
		Belgian	25210883	N
		Icelandic	25210884	N
		Slovenian	25210885	N
		Swiss	25210886	N
		US international	25210887	N
		Czech&Slovak	25210888	N
		Bulgarian	25210889	N
		Indic	25210890	N

Miscellaneous parts

Table 6. Parts list—Miscellaneous parts

FRU	FRU no.	CRU ID.
System miscellaneous part: • (*a*) Flex10 HDD Bracket	90204587	N
Cable miscellaneous parts: • (b) Flex10 TouchPad Board Cable • (c) Flex10 Power Button Board Cable **Note:** Italicized letters in parentheses are references to the exploded view in “Overall” on page 52.	90204589 90204588	

Screws

Table 7. Parts list—screws

FRU	P/N	CRU ID.
Flex10 Screw M2 × L3 D4 T0.8	90204866	N
Flex10 Screw M2 × L4 D3.5 T0.7	90204867	N
Flex10 Screw M3 × L3 D5.0 T0.3	90204868	N
Flex10 Screw M2 × L6 D4.0 T0.8	90204869	N
Flex10 Screw M2 × L1.7 D5.0 T0.3	90204870	N

AC adapters

Table 8. Parts list—AC adapters

FRU	P/N	CRU ID.
Adapter, 45w AC Adapter (3Pin) 20V + Rectangle plug, Delta ADLX45NDC3A 20V2.25A adapter	36200245	*
Adapter, 45w AC Adapter (3Pin) 20V + Rectangle plug, Liteon ADLX45NLC3A 20V2.25A adapter	36200246	*
Adapter, 45w AC Adapter (3Pin) 20V + Rectangle plug, Chicony ADLX45NCC3A 20V2.25A adapter	36200247	*

Power cords

A Lenovo power cord for a specific country or region is usually available only in that country or region:

Table 9. Parts list—3-pin power cords

Region	P/N	CRU ID.
UK • LINETEK LP-61L+ H03VV-F+ LS15 1m	145000593	*
UK • Longwell LP-61L+H03VV-F+LS-18 1m	145000561	*
UK • VOLEX MP5004+H03VV-F+VAC5S 1m	145000605	*
UK • lux 0031+H03VV-F 0.75/3C+0011 1m	145500000	*
Europe • LINETEK LP-34+H03VV-F + LS15 1m	145000585	*
Europe • Longwell LP-34A+H03VV-F+LS-18 1m	145000553	*
Europe • VOLEX M2511+HO3VV-F+VAC5S 1m	145000525	*
Europe • lux 0033+H03VV-F 0.75/3C+0011 1m	145500001	*
US • LINETEK LP-30B + SPT-2 + LS15 1m	145000594	*
US • Longwell LP-30B+SPT-2 18AWG+LS-18 1m	145000562	*
US • Volex US15S3+SPT-2 +VAC5S 1m	145000537	*
US • lux 0014+SPT-2 60°C 18/3C+0016 1m	145500002	*
China • LINETEK PC323+RVV300/300+LS15 1m	145000600	*
China • Longwell LSG-31+RVV300/300+LS-18 1m	145000568	*
China • VOLEX GB10S3+RVV 300/500+VAC5S 1m	145000538	*
China • lux 0036+RVV 300/300 0.75/3C+0002 1m	145500003	*
India • LINETEK PE-361+ H05VV-F+ LS15 1m	145000592	*
India • Longwell LP-67+BIS+LS-18 1m	145000560	*
India • VOLEX IA6A3+IS694+VAC5S 1m	145000536	*
India • lux 0046+IS694 0.75/3C+0011 1m	145500004	*
Japan • LINETEK LS15+VCTF+LP-54 1m	145000587	*

Table 9. Parts list—3-pin power cords (continued)

Region	P/N	CRU ID.
Japan • Longwell LP-54+VCTF+LS-18 1m	145000555	*
Japan • VOLEX VAC5S+VCTF+M755 1m	145000530	*
Japan • lux 0018(E)+VCTF 0.75/3C+0021 1m	145500005	*
Australia • LINETEK LS15+H03VV-F+LP-23A 1m	145000589	*
Australia • Longwell LP-23A+LFC-3R+LS-18 1m	145000557	*
Australia • VOLEX AU10S3+H03VV-F+VAC5S 1m	145000532	*
Australia • lux 0038+H03VV-F 0.75/3C+0011 1m	145500006	*
Taiwan • LINETEK LS15+VCTF+LP-53 1m	145000588	*
Taiwan • Longwell LP-71+VCTF+LS-33 1m	145000556	*
Taiwan • VOLEX TW15CS3+VCTF+VAC5S 1m	145000531	*
Taiwan • lux 0019+VCTF 0.75/3C+0021 1m	145500007	*
Korea • LINETEK LS15+H05VV-F+LP-E04A 1m	145000590	*
Korea • Longwell LP-486+KTLH03VV-F+LS-5 1m	145000558	*
Korea • VOLEX M2511+KETI IEC+VAC5S 1m	145000533	*
Korea • lux 0033+H03VV-F 0.75/3C+0011 1m	145500008	*
Italy • LINETEK LS15+H03VV-F+PE-336 1m	145000591	*
Italy • Longwell LP-22+H03VV-F+LS-18 1m	145000559	*
Italy • VOLEX IT10S3+HO3VV-F+VAC5S 1m	145000535	*
Italy • lux 0029+H03VV-F 0.75/3C+0011 1m	145500009	*
South Africa • LINETEK LS15+H03VV-F+PE-364 1m	145000586	*
South Africa • Longwell LP-39+H03VV-F+LS-18 1m	145000554	*
South Africa • lux 0044+H03VV-F 0.75/3C+0011 1m	145500010	*

Table 9. Parts list—3-pin power cords (continued)

Region	P/N	CRU ID.
Brazil • LINETEK LS15 H03VV-F LP26A 1m	145000596	*
Brazil • Longwell LP-46+H03VV-F+LS-18 1m	145000564	*
Brazil • VOLEX CH10S3+H03VV-F+VAC5S 1m	145000527	*
Brazil • lux 0034+H03VV-F 0.75/3C+0011 1m	145500011	*
Israel • LINETEK LS15+H03VV-F+LP-41 1m	145000595	*
Israel • Longwell LP-41+H03VV-F+LS-18 1m	145000563	*
Israel • VOLEX SI16S3+H03VV-F+VAC5S 1m	145000526	*
Israel • lux 0041+H03VV-F 0.75/3C+0011 1m	145500012	*
Switzerland • LINETEK LS15+H03VV-F+LP-37 1m	145000597	*
Switzerland • Longwell LP-37+H03VV-F+LS-18 1m	145000565	*
Switzerland • VOLEX MP232+H03VV-F+VAC5S 1m	145000524	*
Switzerland • lux 0027+H03VV-F 0.75/3C+0011 1m	145500013	*
Denmark • LINETEK LS15+H03VV-F+LP-38 1m	145000598	*
Denmark • Longwell LP-40+H03VV-F+LS-18 1m	145000566	*
Denmark • VOLEX MP233D+H03VV-F+VAC5S 1m	145000534	*
Denmark • lux 0048+H03VV-F 0.75/3C+0011 1m	145500014	*
Argentina • LINETEK LS15+H03VV-F+LP39 1m	145000599	*
Argentina • Longwell LP-24+H03VV-F+LS-18 1m	145000567	*
Argentina • VOLEX VA2073+H03VV-F+VAC5S 1m	145000528	*
Argentina • lux 0040+H03VV-F 0.75/3C+0011 1m	145500015	*

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